Accessing biological collections data of Indian origin

Natural history collections are essential for biodiversity research, as they are time capsules to analyse conditions from the past and compare them with our present-day state of affairs. The baseline data that these collections provide can be used to measure biological variations and environmental changes. Curatorial capacities and biological reference collections are the base for taxonomic work. Internationally, sharing of information is an essential factor in overcoming the taxonomic impediments, because there is often a narrow understanding of what a species is, and removing the taxonomic impediments implies a wider understanding of the taxonomic hierarchy.

However, contrary to the spread of diversity of life which is more concentrated within tropical regions that constitute mostly developing and under-developed parts of the world, collections facilities from developed nations are rich with specimens collected from these once-poor nations. It is estimated that around 6500 museums throughout the world house around 3 billion specimens[1], most of which belong to developing nations such as India. Due to our colonial past, biological specimens collected during pre-independence and even post-independence are deposited with European museums (especially UK, Denmark, France, Portugal, etc.) and North American collection facilities, most of which are type specimens.

Access to these specimens by Indian researchers, when needed most, is time-consuming and expensive due to the geographic distances, lack of communication infrastructure and financial support. However, with the advent of information and communication technology, it is now feasible to access data on these specimens, if not the specimens themselves. During the past decade, most of the museums from developed nations have initiated digitizing the specimens that they are holding, as they are finding it increasingly difficult to access and manage collections data. With the global and regional biodiversity informatics initiatives such as GBIF[2], ENBI[3], BioCASE[4], BioCISE[5], Species Analyst[6], ENHSIN[7], etc., sharing data about these specimens with the countries of origin is gaining momentum. However, it is equally important that countries of origin too initiate appropriate steps, and share responsibility that would be complementary to these initiatives.

Developing nations such as India, with their major scientifically documented biological collections in museums abroad, need to undertake a national drive to ensure access to data on these specimens. This calls for an all-India coordinated programme on repatriating data on specimens of Indian origin housed in museums abroad. Some of the developing countries such as Mexico, Brazil and Costa Rica, have already progressed well with such initiatives. For instance, Mexico has made an assessment of its national taxonomic capacities on zoological, botanical and microbiological collections[8], as part of National Biological Inventory Programme (CONABIO)[8]. As a fundamental step to improve its capacities, CONABIO has databased Mexican collections, repatriated data on collections around the world and is training taxonomists to manage information.

Realizing this, the NCL Centre for Biodiversity Informatics (http://www.ncbi.org.in/) has taken up the development of a web-interfaced database called 'ABCD of Indian Origin' (Access to Biological Collections Data of Indian Origin). Accessible at http://www.ncbi.org.in/abcdio/, its aim is to collate information and digitized images of specimens that are housed in herbariums and museums abroad. So far, data on more than 30,000 specimens spanning over 15 museums and collection facilities from UK, USA, Australia, Sweden and Canada have been acquired and collated. Our experience of collating the data indicates that once enriched, the data would be of significance in our biodiversity research and in overcoming taxonomic impediments. We appeal to the community of taxonomists and ecologists to participate in this initiative by helping us in identifying the museums abroad that hold significant quantum of our biological specimens. Detailed information on taxa categories, type of specimens and number of samples housed in museums abroad, along with information on when and where they were collected and by whom, would be of immense help in approaching these museums to share the data with the Indian scientific community.

1. Chavan, Vishwas and Krishnan, S., *Curr. Sci.*, 2003, **84**, 34–42.
2. Global Biodiversity Information Facility, available at http://www.gbif.org.
3. European Network for Biodiversity Information, available at http://www.enbi.info.
4. Biological Collection Access Service for Europe, available at http://www.biocase.org.
5. Biological Collection Information Service in Europe, available at http://www.bgbm.fuberlin.de/biocise/.
6. Species Analyst, available at http://speciesanalyst.net/.
7. European Natural History Specimen Information Network, available at http://www.nhm.ac.uk/science/rco/enhsin/.
8. National Commission for the Knowledge and Use of Biodiversity (CONABIO), available at http://www.conabio.gob.mx/.

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